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L1: Entry 27 of 31 File: USPT Jan 12, 1988

US-PAT-NO: 4719588
DOCUMENT-IDENTIFIER: US 4719588 A

TITLE: Matrix multiplication circuit for graphic display

DATE-ISSUED: January 12, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tatemichi; Takaomi	Tokyo			JP
Takahashi; Masato	Tokyo			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Seiko Instruments & Electronics Ltd.	Tokyo			JP	03

APPL-NO: 06/ 607420 [PALM]
DATE FILED: May 7, 1984

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	58-79797	May 6, 1983
JP	58-188017	October 7, 1983

INT-CL: [04] G06F 7/52

US-CL-ISSUED: 364/754
US-CL-CURRENT: 708/607

FIELD-OF-SEARCH: 364/715, 364/736, 364/749, 364/754, 364/757-760

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3161764	December 1964	Croy	364/749
3763365	October 1973	Seitz	364/754
4044243	August 1977	Cooper et al.	364/715
4254474	March 1981	Copper et al.	364/715
4507748	March 1985	Cotton	364/757
4553220	November 1985	Swanson	364/715

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0080528	June 1983	EP	364/754

ART-UNIT: 231

PRIMARY-EXAMINER: Harkcom; Gary V.

ASSISTANT-EXAMINER: Shaw; Dale M.

ABSTRACT:

A matrices elements memory is constituted by random access memories, and its addresses are divided into a high address and a low address. The high address specifies areas holding matrix elements, and the low addresses of the matrix elements are designated sequentially bit-by-bit, starting from the least significant bit, so as to enable serial reading. A calculation unit consists of pairs of serial multiplicators which are either used in a cascade connection or independently as independent multiplicators, in order to correspond to the data length of a multiplicand.

16 Claims, 12 Drawing figures

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L1: Entry 14 of 31 File: USPT Dec 22, 1998

US-PAT-NO: 5852567
DOCUMENT-IDENTIFIER: US 5852567 A

TITLE: Iterative time-frequency domain transform method for filtering time-varying, nonstationary wide band signals in noise

DATE-ISSUED: December 22, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Xia; Xiang-Gen	Westlake Village	CA		
Qian; Shie	Austin	TX		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Hughes Electronics Corporation	El Segundo	CA			02
National Instruments Corporation	Austin	TX			02

APPL-NO: 08/ 695321 [PALM]
DATE FILED: July 31, 1996

INT-CL: [06] G06 F 15/31, G01 R 23/16

US-CL-ISSUED: 364/725.01; 702/76
US-CL-CURRENT: 708/400; 702/76

FIELD-OF-SEARCH: 364/724.011, 364/724.19, 364/725.01, 364/485, 364/484, 364/826, 342/192, 342/194, 342/195, 73/602, 702/76

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4837578	June 1989	Gammell	342/194
4894795	January 1990	Whitehouse et al.	364/807
5046504	September 1991	Albert et al.	128/696
5291560	March 1994	Daugman	382/2
5353233	October 1994	Oian et al.	364/485

OTHER PUBLICATIONS

Qian, Shie and Dapang Chen, "Discrete Gabor Transform," IEEE Transactions on Signal Processing, vol. 41, No. 7, Jul. 1993, pp. 2429-2438.
Qian, Shie and Dapang Chen, "Optimal Biorthogonal Analysis Window Function for Discrete

Gabor Transform," IEEE Transactions on Special Processng, vol. 42, No. 3, Mar. 1994, pp. 694-697.
Qian et al., "Discrete Gabor Transform", IEEE Transactions on Signal Processing, vol. 41, No. 7, Jul. 1993, pp. 2429-2438.
Wexler et al., "Discrete Gabor Expansions", Elsevier Science Publishers B.V., vol. 21, No. 3, Nov. 1990, pp. 207-220.

ART-UNIT: 277

PRIMARY-EXAMINER: Sheikh; Ayaz R.

ASSISTANT-EXAMINER: Lee; Douglas S.

ABSTRACT:

An iterative time frequency algorithm filters noisy wide band/nonstationary signals by projecting the noisy signal into the TF domain, masking the TF response, computing the inverse TF transform to extract a filtered signal, and repeating these steps until the projection lies within the mask. As a result, the TF domain properties of the extracted signal are substantially equal to the desired TF domain properties. Furthermore, the iterative approach is computationally simple because it avoids inverting matrices. The TF transform and its inverse must be selected such that the iterative algorithm is guaranteed to converge. Candidate transform pairs can be tested on known data, and if the TF transforms converge to the desired TF properties, the candidate pair can be selected. Alternately, the candidate pairs can be tested against a sufficient convergence condition, and if they satisfy the condition within an acceptable tolerance, they can be selected with confidence. Furthermore, the sufficient convergence condition can be solved directly to provide the TF transform and its inverse.

17 Claims, 12 Drawing figures